

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Applicant : NITSCH et al.
Filed : Herewith
TC/A.U. :
Examiner :

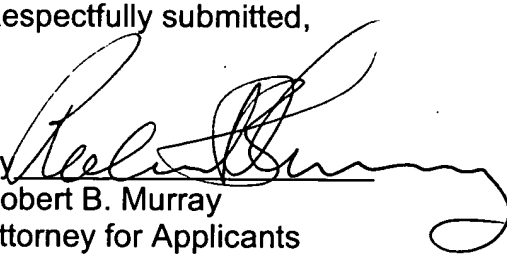
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STATEMENT UNDER 37 C.F.R. §1.821(f)

An initial Sequence Listing is submitted and its entry into the application is respectfully requested. An initial computer-readable form of the Sequence Listing is also submitted, and it is hereby certified that the content of the Sequence Listing information recorded in the computer readable form is identical to the Sequence Listing written on paper, and contains no new matter.

Respectfully submitted,

By 
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RBM/cg

SEQUENCE LISTING

<110> Nitsch, Robert
Ninnemann, Olaf
Braeuer, Anja
Savaskan, Nicolai

<120> Lipid Phosphate Phosphatases and Uses Therefor for Treating
Neuronal Diseases

<130> 2958-131

<150> PCT/EP2003/010228

<151> 2003-09-15

<150> 03002993.8

<151> 2003-02-11

<150> 02020679.3

<151> 2002-09-13

<160> 38

<170> PatentIn version 3.3

<210> 1

<211> 763

<212> PRT

<213> Homo sapiens

<400> 1

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Gly Ala Gly Arg Leu Gly Leu Glu Glu Ala Ala Arg Leu Ser Cys Ala
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Val His Thr Ser Pro Gly Gly Gly Arg Arg Pro Gly Gln Ala Ala Gly
35 40 45

Met Ser Ala Lys Glu Arg Pro Lys Gly Lys Val Ile Lys Asp Ser Val
50 55 60

Thr Leu Leu Pro Cys Phe Tyr Phe Val Glu Leu Pro Ile Leu Ala Ser
65 70 75 80

Ser Val Val Ser Leu Tyr Phe Leu Glu Leu Thr Asp Val Phe Lys Pro
85 90 95

Val	His	Ser	Gly	Phe	Ser	Cys	Tyr	Asp	Arg	Ser	Leu	Ser	Met	Pro	Tyr	100	105	110	
Ile	Glu	Pro	Thr	Gln	Glu	Ala	Ile	Pro	Phe	Leu	Met	Leu	Leu	Ser	Leu	115	120	125	
Ala	Phe	Ala	Gly	Pro	Ala	Ile	Thr	Ile	Met	Val	Gly	Glu	Gly	Ile	Leu	130	135	140	
Tyr	Cys	Cys	Leu	Ser	Lys	Arg	Arg	Asn	Gly	Val	Gly	Leu	Glu	Pro	Asn	145	150	155	160
Ile	Asn	Ala	Gly	Gly	Cys	Asn	Phe	Asn	Ser	Phe	Leu	Arg	Arg	Ala	Val	165	170	175	
Arg	Phe	Val	Gly	Val	His	Val	Phe	Gly	Leu	Cys	Ser	Thr	Ala	Leu	Ile	180	185	190	
Thr	Asp	Ile	Ile	Gln	Leu	Ser	Thr	Gly	Tyr	Gln	Ala	Pro	Tyr	Phe	Leu	195	200	205	
Thr	Val	Cys	Lys	Pro	Asn	Tyr	Thr	Ser	Leu	Asn	Val	Ser	Cys	Lys	Glu	210	215	220	
Asn	Ser	Tyr	Ile	Val	Glu	Asp	Ile	Cys	Ser	Gly	Ser	Asp	Leu	Thr	Val	225	230	235	240
Ile	Asn	Ser	Gly	Arg	Lys	Ser	Phe	Pro	Ser	Gln	His	Ala	Thr	Leu	Ala	245	250	255	
Ala	Phe	Ala	Ala	Val	Tyr	Val	Ser	Met	Tyr	Phe	Asn	Ser	Thr	Leu	Thr	260	265	270	
Asp	Ser	Ser	Lys	Leu	Leu	Lys	Pro	Leu	Leu	Val	Phe	Thr	Phe	Ile	Ile	275	280	285	
Cys	Gly	Ile	Ile	Cys	Gly	Leu	Thr	Arg	Ile	Thr	Gln	Tyr	Lys	Asn	His	290	295	300	
Pro	Val	Asp	Val	Tyr	Cys	Gly	Phe	Leu	Ile	Gly	Gly	Gly	Ile	Ala	Leu	305	310	315	320

Tyr Leu Gly Leu Tyr Ala Val Gly Asn Phe Leu Pro Ser Asp Glu Ser
325 330 335

Met Phe Gln His Arg Asp Ala Leu Arg Ser Leu Thr Asp Leu Asn Gln
340 345 350

Asp Pro Asn Arg Leu Leu Ser Ala Lys Asn Gly Ser Ser Ser Asp Gly
355 360 365

Ile Ala His Thr Glu Gly Ile Leu Asn Arg Asn His Arg Asp Ala Ser
370 375 380

Ser Leu Thr Asn Leu Lys Arg Ala Asn Ala Asp Val Glu Ile Ile Thr
385 390 395 400

Pro Arg Ser Pro Met Gly Lys Glu Asn Met Val Thr Phe Ser Asn Thr
405 410 415

Leu Pro Arg Ala Asn Thr Pro Ser Val Glu Asp Pro Val Arg Arg Asn
420 425 430

Ala Ser Ile His Ala Ser Met Asp Ser Ala Arg Ser Lys Gln Leu Leu
435 440 445

Thr Gln Trp Lys Asn Lys Asn Glu Ser Arg Lys Leu Ser Leu Gln Val
450 455 460

Ile Glu Pro Glu Pro Gly Gln Ser Pro Pro Arg Ser Ile Glu Met Arg
465 470 475 480

Ser Ser Ser Glu Pro Ser Arg Val Gly Val Asn Gly Asp His His Gly
485 490 495

Pro Gly Asn Gln Tyr Leu Lys Ile Gln Pro Gly Ala Val Pro Gly Cys
500 505 510

Asn Asn Ser Met Pro Gly Gly Pro Arg Val Ser Ile Gln Ser Arg Pro
515 520 525

Gly Ser Ser Gln Leu Val His Ile Pro Glu Glu Thr Gln Glu Asn Ile

530

535

540

Ser Thr Ser Pro Lys Ser Ser Ser Ala Arg Ala Lys Trp Leu Lys Ala
 545 550 555 560

Ala Glu Lys Thr Val Ala Cys Asn Arg Ser Asn Ser Gln Pro Arg Ile
 565 570 575

Met Gln Val Ile Ala Met Ser Lys Gln Gln Gly Val Leu Gln Ser Ser
 580 585 590

Pro Lys Asn Thr Glu Gly Ser Thr Val Ser Cys Thr Gly Ser Ile Arg
 595 600 605

Tyr Lys Thr Leu Thr Asp His Glu Pro Ser Gly Ile Val Arg Val Glu
 610 615 620

Ala His Pro Glu Asn Asn Arg Pro Ile Ile Gln Ile Pro Ser Thr Glu
 625 630 635 640

Gly Glu Gly Ser Gly Ser Trp Lys Trp Lys Ala Pro Glu Lys Gly Ser
 645 650 655

Leu Arg Gln Thr Tyr Glu Leu Asn Asp Leu Asn Arg Asp Ser Glu Ser
 660 665 670

Cys Glu Ser Leu Lys Asp Ser Phe Gly Ser Gly Asp Arg Lys Arg Ser
 675 680 685

Asn Ile Asp Ser Asn Glu His His His His Gly Ile Thr Thr Ile Arg
 690 695 700

Val Thr Pro Val Glu Gly Ser Glu Ile Gly Ser Glu Thr Leu Ser Ile
 705 710 715 720

Ser Ser Ser Arg Asp Ser Thr Leu Arg Arg Lys Gly Asn Ile Ile Leu
 725 730 735

Ile Pro Glu Arg Ser Asn Ser Pro Glu Asn Thr Arg Asn Ile Phe Tyr
 740 745 750

Lys Gly Thr Ser Pro Thr Arg Ala Tyr Lys Asp
755 760

<210> 2
<211> 746
<212> PRT
<213> Homo sapiens

<400> 2

Met Ile Ser Thr Lys Glu Lys Asn Lys Ile Pro Lys Asp Ser Met Thr
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Leu Leu Pro Cys Phe Tyr Phe Val Glu Leu Pro Ile Val Ala Ser Ser
20 25 30

Ile Val Ser Leu Tyr Phe Leu Glu Leu Thr Asp Leu Phe Lys Pro Ala
35 40 45

Lys Val Gly Phe Gln Cys Tyr Asp Arg Thr Leu Ser Met Pro Tyr Val
50 55 60

Glu Thr Asn Glu Glu Leu Ile Pro Leu Leu Met Leu Leu Ser Leu Ala
65 70 75 80

Phe Ala Ala Pro Ala Ala Ser Ile Met Val Ala Glu Gly Met Leu Tyr
85 90 95

Cys Leu Gln Ser Arg Leu Trp Gly Arg Ala Gly Gly Pro Ala Gly Ala
100 105 110

Glu Gly Ser Ile Asn Ala Gly Gly Cys Asn Phe Asn Ser Phe Leu Arg
115 120 125

Arg Thr Val Arg Phe Val Gly Val His Val Phe Gly Leu Cys Ala Thr
130 135 140

Ala Leu Val Thr Asp Val Ile Gln Leu Ala Thr Gly Tyr His Thr Pro
145 150 155 160

Phe Phe Leu Thr Val Cys Lys Pro Asn Tyr Thr Leu Leu Gly Thr Ser
165 170 175

Cys Glu Val Asn Pro Tyr Ile Thr Gln Asp Ile Cys Ser Gly His Asp
180 185 190

Ile His Ala Ile Leu Ser Ala Arg Lys Thr Phe Pro Ser Gln His Ala
195 200 205

Thr Leu Ser Ala Phe Ala Ala Val Tyr Val Ser Val Ser Pro Ala Pro
210 215 220

His Cys Pro Ser Gln Ala Leu Leu Leu Thr Arg Gly Glu Pro Ser Leu
225 230 235 240

Thr Pro Thr Pro Met Pro Gln Met Tyr Phe Asn Ser Val Ile Ser Asp
245 250 255

Thr Thr Lys Leu Leu Lys Pro Ile Leu Val Phe Ala Phe Ala Ile Ala
260 265 270

Ala Gly Val Cys Gly Leu Thr Gln Ile Thr Gln Tyr Arg Ser His Pro
275 280 285

Val Asp Val Tyr Ala Gly Phe Leu Ile Gly Ala Gly Ile Ala Ala Tyr
290 295 300

Leu Ala Cys His Ala Val Gly Asn Phe Gln Ala Pro Pro Ala Glu Lys
305 310 315 320

Pro Ala Ala Pro Ala Pro Ala Lys Asp Ala Leu Arg Ala Leu Thr Gln
325 330 335

Arg Gly His Asp Ser Val Tyr Gln Gln Asn Lys Ser Val Ser Thr Asp
340 345 350

Glu Leu Gly Pro Pro Gly Arg Leu Glu Gly Ala Pro Arg Pro Val Ala
355 360 365

Arg Glu Lys Thr Ser Leu Gly Ser Leu Lys Arg Ala Ser Val Asp Val
370 375 380

Asp Leu Leu Ala Pro Arg Ser Pro Met Ala Lys Glu Asn Met Val Thr
385 390 395 400

Phe Ser His Thr Leu Pro Arg Ala Ser Ala Pro Ser Leu Asp Asp Pro
 405 410 415

Ala Arg Arg His Met Thr Ile His Val Pro Leu Asp Ala Ser Arg Ser
 420 425 430

Lys Gln Leu Ile Ser Glu Trp Lys Gln Lys Ser Leu Glu Gly Arg Gly
 435 440 445

Leu Gly Leu Pro Asp Asp Ala Ser Pro Gly His Leu Arg Ala Pro Ala
 450 455 460

Glu Pro Met Ala Glu Glu Glu Glu Glu Glu Asp Glu Glu Glu Glu
 465 470 475 480

Glu Glu Glu Glu Glu Glu Glu Asp Glu Gly Pro Ala Pro Pro Ser Leu
 485 490 495

Tyr Pro Thr Val Gln Ala Arg Pro Gly Leu Gly Pro Arg Val Ile Leu
 500 505 510

Pro Pro Arg Ala Gly Pro Pro Pro Leu Val His Ile Pro Glu Glu Gly
 515 520 525

Ala Gln Thr Gly Ala Gly Leu Ser Pro Lys Ser Gly Ala Gly Val Arg
 530 535 540

Ala Lys Trp Leu Met Met Ala Glu Lys Ser Gly Ala Ala Val Ala Asn
 545 550 555 560

Pro Pro Arg Leu Leu Gln Val Ile Ala Met Ser Lys Ala Pro Gly Ala
 565 570 575

Pro Gly Pro Lys Ala Ala Glu Thr Ala Ser Ser Ser Ser Ala Ser Ser
 580 585 590

Asp Ser Ser Gln Tyr Arg Ser Pro Ser Asp Arg Asp Ser Ala Ser Ile
 595 600 605

Val Thr Ile Asp Ala His Ala Pro His His Pro Val Val His Leu Ser
 610 615 620

Ala Gly Gly Ala Pro Trp Glu Trp Lys Ala Ala Gly Gly Gly Ala Lys
625 630 635 640

Ala Glu Ala Asp Gly Gly Tyr Glu Leu Gly Asp Leu Ala Arg Gly Phe
645 650 655

Arg Gly Gly Ala Lys Pro Pro Gly Val Ser Pro Gly Ser Ser Val Ser
660 665 670

Asp Val Asp Gln Glu Glu Pro Arg Phe Gly Ala Val Ala Thr Val Asn
675 680 685

Leu Ala Thr Gly Glu Gly Leu Pro Pro Leu Gly Ala Ala Asp Gly Ala
690 695 700

Leu Gly Pro Gly Ser Arg Glu Ser Thr Leu Arg Arg His Ala Gly Gly
705 710 715 720

Leu Gly Leu Ala Glu Arg Glu Ala Glu Ala Glu Ala Glu Gly Tyr Phe
725 730 735

Arg Lys Met Gln Ala Arg Arg Phe Pro Asp
740 745

<210> 3
<211> 325
<212> PRT
<213> Homo sapiens

<400> 3

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Phe Ile Phe Val Glu Leu Val Ile Met Ala Gly Thr Val Leu Leu Ala
20 25 30

Tyr Tyr Phe Glu Cys Thr Asp Thr Phe Gln Val His Ile Gln Gly Phe
35 40 45

Phe Cys Gln Asp Gly Asp Leu Met Lys Pro Tyr Pro Gly Thr Glu Glu
50 55 60

Glu	Ser	Phe	Ile	Thr	Pro	Leu	Val	Leu	Tyr	Cys	Val	Leu	Ala	Ala	Thr	65	70	75	80
Pro	Thr	Ala	Ile	Ile	Phe	Ile	Gly	Glu	Ile	Ser	Met	Tyr	Phe	Ile	Lys	85	90	95	
Ser	Thr	Arg	Glu	Ser	Leu	Ile	Ala	Gln	Glu	Lys	Thr	Ile	Leu	Thr	Gly	100	105	110	
Glu	Cys	Cys	Tyr	Leu	Asn	Pro	Leu	Leu	Arg	Arg	Ile	Ile	Arg	Phe	Thr	115	120	125	
Gly	Val	Phe	Ala	Phe	Gly	Leu	Phe	Ala	Thr	Asp	Ile	Phe	Val	Asn	Ala	130	135	140	
Gly	Gln	Val	Val	Thr	Gly	His	Leu	Thr	Pro	Tyr	Phe	Leu	Thr	Val	Cys	145	150	155	160
Lys	Pro	Asn	Tyr	Thr	Ser	Ala	Asp	Cys	Gln	Ala	His	His	Gln	Phe	Ile	165	170	175	
Asn	Asn	Gly	Asn	Ile	Cys	Thr	Gly	Asp	Leu	Glu	Val	Ile	Glu	Lys	Ala	180	185	190	
Arg	Arg	Ser	Phe	Pro	Ser	Lys	His	Ala	Ala	Leu	Ser	Ile	Tyr	Ser	Ala	195	200	205	
Leu	Tyr	Ala	Thr	Met	Tyr	Ile	Thr	Ser	Thr	Ile	Lys	Thr	Lys	Ser	Ser	210	215	220	
Arg	Leu	Ala	Lys	Pro	Val	Leu	Cys	Leu	Gly	Thr	Leu	Cys	Thr	Ala	Phe	225	230	235	240
Leu	Thr	Gly	Leu	Asn	Arg	Val	Ser	Glu	Tyr	Arg	Asn	His	Cys	Ser	Asp	245	250	255	
Val	Ile	Ala	Gly	Phe	Ile	Leu	Gly	Thr	Ala	Val	Ala	Leu	Phe	Leu	Gly	260	265	270	
Met	Cys	Val	Val	His	Asn	Phe	Lys	Gly	Thr	Gln	Gly	Ser	Pro	Ser	Lys				

275

280

285

Pro Lys Pro Glu Asp Pro Arg Gly Val Pro Leu Met Ala Phe Pro Arg
 290 295 300

Ile Glu Ser Pro Leu Glu Thr Leu Ser Ala Gln Asn His Ser Ala Ser
 305 310 315 320

Met Thr Glu Val Thr
 325

<210> 4
 <211> 343
 <212> PRT
 <213> Homo sapiens

<400> 4

Met Ala Gly Gly Arg Pro His Leu Lys Arg Ser Phe Ser Ile Ile Pro
 1 5 10 15

Cys Phe Val Phe Val Glu Ser Val Leu Leu Gly Ile Val Ile Leu Leu
 20 25 30

Ala Tyr Arg Leu Glu Phe Thr Asp Thr Phe Pro Val His Thr Gln Gly
 35 40 45

Phe Phe Cys Tyr Asp Ser Thr Tyr Ala Lys Pro Tyr Pro Gly Pro Glu
 50 55 60

Ala Ala Ser Arg Val Pro Pro Ala Leu Val Tyr Ala Leu Val Thr Ala
 65 70 75 80

Gly Pro Thr Leu Thr Ile Leu Leu Gly Glu Leu Ala Arg Ala Phe Phe
 85 90 95

Pro Ala Pro Pro Ser Ala Val Pro Val Ile Gly Glu Ser Thr Ile Val
 100 105 110

Ser Gly Ala Cys Cys Arg Phe Ser Pro Pro Val Arg Arg Leu Val Arg
 115 120 125

Phe Leu Gly Val Tyr Ser Phe Gly Leu Phe Thr Thr Thr Ile Phe Ala

130

135

140

Asn Ala Gly Gln Val Val Thr Gly Asn Pro Thr Pro His Phe Leu Ser
 145 150 155 160

Val Cys Arg Pro Asn Tyr Thr Ala Leu Gly Cys Leu Pro Pro Ser Pro
 165 170 175

Asp Arg Pro Gly Pro Asp Arg Phe Val Thr Asp Gln Gly Ala Cys Ala
 180 185 190

Gly Ser Pro Ser Leu Val Ala Ala Ala Arg Arg Ala Phe Pro Cys Lys
 195 200 205

Asp Ala Ala Leu Cys Ala Tyr Ala Val Thr Tyr Thr Ala Met Tyr Val
 210 215 220

Thr Leu Val Phe Arg Val Lys Gly Ser Arg Leu Val Lys Pro Ser Leu
 225 230 235 240

Cys Leu Ala Leu Leu Cys Pro Ala Phe Leu Val Gly Val Val Arg Val
 245 250 255

Ala Glu Tyr Arg Asn His Trp Ser Asp Val Leu Ala Gly Phe Leu Thr
 260 265 270

Gly Ala Ala Ile Ala Thr Phe Leu Val Thr Cys Val Val His Asn Phe
 275 280 285

Gln Ser Arg Pro Pro Ser Gly Arg Arg Leu Ser Pro Trp Glu Asp Leu
 290 295 300

Gly Gln Ala Pro Thr Met Asp Ser Pro Leu Glu Lys Asn Pro Arg Ser
 305 310 315 320

Ala Gly Arg Ile Arg His Arg His Gly Ser Pro His Pro Ser Arg Arg
 325 330 335

Thr Ala Pro Ala Val Ala Thr
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<210> 5
 <211> 766
 <212> PRT
 <213> Mus musculus

<400> 5

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Gly Ala Gly Arg Leu Arg Leu Glu Gln Ala Ala Arg Leu Gly Gly Arg
 20 25 30

Thr Val His Thr Ser Pro Gly Gly Gly Leu Gly Ala Arg Gln Ala Ala
 35 40 45

Gly Met Ser Ala Lys Glu Arg Pro Lys Gly Lys Val Ile Lys Asp Ser
 50 55 60

Val Thr Leu Leu Pro Cys Phe Tyr Phe Val Glu Leu Pro Ile Leu Ala
 65 70 75 80

Ser Ser Val Val Ser Leu Tyr Phe Leu Glu Leu Thr Asp Val Phe Lys
 85 90 95

Pro Val His Ser Gly Phe Ser Cys Tyr Asp Arg Ser Leu Ser Met Pro
 100 105 110

Tyr Ile Glu Pro Thr Gln Glu Ala Ile Pro Phe Leu Met Leu Leu Ser
 115 120 125

Leu Ala Phe Ala Gly Pro Ala Ile Thr Ile Met Val Gly Glu Gly Ile
 130 135 140

Leu Tyr Cys Cys Leu Ser Lys Arg Arg Asn Gly Ala Gly Leu Glu Pro
 145 150 155 160

Asn Ile Asn Ala Gly Gly Cys Asn Phe Asn Ser Phe Leu Arg Arg Ala
 165 170 175

Val Arg Phe Val Gly Val His Val Phe Gly Leu Cys Ser Thr Ala Leu
 180 185 190

Ile Thr Asp Ile Ile Gln Leu Ser Thr Gly Tyr Gln Ala Pro Tyr Phe
 195 200 205

Leu Thr Val Cys Lys Pro Asn Tyr Thr Ser Leu Asn Val Ser Cys Lys
 210 215 220

Glu Asn Ser Tyr Ile Val Glu Asp Ile Cys Ser Gly Ser Asp Leu Thr
 225 230 235 240

Val Ile Asn Ser Gly Arg Lys Ser Phe Pro Ser Gln His Ala Thr Leu
 245 250 255

Ala Ala Phe Ala Ala Val Tyr Val Ser Met Tyr Phe Asn Ser Thr Leu
 260 265 270

Thr Asp Ser Ser Lys Leu Leu Lys Pro Leu Leu Val Phe Thr Phe Ile
 275 280 285

Ile Cys Gly Ile Ile Cys Gly Leu Thr Arg Ile Thr Gln Tyr Lys Asn
 290 295 300

His Pro Val Asp Val Tyr Cys Gly Phe Leu Ile Gly Gly Gly Ile Ala
 305 310 315 320

Leu Tyr Leu Gly Leu Tyr Ala Val Gly Asn Phe Leu Pro Ser Glu Asp
 325 330 335

Ser Met Leu Gln His Arg Asp Ala Leu Arg Ser Leu Thr Asp Leu Asn
 340 345 350

Gln Asp Pro Ser Arg Val Leu Ser Ala Lys Asn Gly Ser Ser Gly Asp
 355 360 365

Gly Ile Ala His Thr Glu Gly Ile Leu Asn Arg Asn His Arg Asp Ala
 370 375 380

Ser Ser Leu Thr Asn Leu Lys Arg Ala Asn Ala Asp Val Glu Ile Ile
 385 390 395 400

Thr Pro Arg Ser Pro Met Gly Lys Glu Ser Met Val Thr Phe Ser Asn
 405 410 415

Thr Leu Pro Arg Ala Asn Thr Pro Ser Val Glu Asp Pro Val Arg Arg
 420 425 430

Asn Ala Ser Ile His Ala Ser Met Asp Ser Ala Arg Ser Lys Gln Leu
 435 440 445

Leu Thr Gln Trp Lys Ser Lys Asn Glu Ser Arg Lys Met Ser Leu Gln
 450 455 460

Val Met Asp Thr Glu Pro Glu Gly Gln Ser Pro Pro Arg Ser Ile Glu
 465 470 475 480

Met Arg Ser Ser Ser Glu Pro Ser Arg Val Gly Val Asn Gly Asp His
 485 490 495

His Val Pro Gly Asn Gln Tyr Leu Lys Ile Gln Pro Gly Thr Val Pro
 500 505 510

Gly Cys Asn Asn Ser Met Pro Gly Gly Pro Arg Val Ser Ile Gln Ser
 515 520 525

Arg Pro Gly Ser Ser Gln Leu Val His Ile Pro Glu Glu Thr Gln Glu
 530 535 540

Asn Ile Ser Thr Ser Pro Lys Ser Ser Ser Ala Arg Ala Lys Trp Leu
 545 550 555 560

Lys Ala Ala Glu Lys Thr Val Asp Cys Asn Arg Ser Asn Asn Gln Pro
 565 570 575

Arg Ile Met Gln Val Ile Ala Met Ser Lys Gln Gln Gly Val Leu Gln
 580 585 590

Ser Ser Pro Lys Asn Ala Glu Gly Ser Thr Val Thr Cys Thr Gly Ser
 595 600 605

Ile Arg Tyr Lys Thr Leu Thr Asp His Glu Pro Ser Gly Ile Val Arg
 610 615 620

Val Glu Ala His Pro Glu Asn Asn Arg Pro Ile Ile Gln Ile Pro Ser
 625 630 635 640

Ser Thr Glu Gly Glu Gly Ser Gly Ser Trp Lys Trp Lys Val Pro Glu
645 650 655

Lys Ser Ser Leu Arg Gln Thr Tyr Glu Leu Asn Asp Leu Asn Arg Asp
660 665 670

Ser Glu Ser Cys Glu Ser Leu Lys Asp Ser Phe Gly Ser Gly Asp Arg
675 680 685

Lys Arg Ser Asn Ile Asp Ser Asn Glu His His His His Gly Ile Thr
690 695 700

Thr Ile Arg Val Thr Pro Val Glu Gly Ser Glu Ile Gly Ser Glu Thr
705 710 715 720

Leu Ser Val Ser Ser Ser Arg Asp Ser Thr Leu Arg Arg Lys Gly Asn
725 730 735

Ile Ile Leu Ile Pro Glu Arg Ser Asn Ser Pro Glu Asn Thr Arg Asn
740 745 750

Ile Phe Tyr Lys Gly Thr Ser Pro Thr Arg Ala Tyr Lys Asp
755 760 765

<210> 6
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<212> PRT
<213> Mus musculus

<400> 6

Met Leu Ala Met Lys Glu Lys Asn Lys Thr Pro Lys Asp Ser Met Thr
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Leu Leu Pro Cys Phe Tyr Phe Val Glu Leu Pro Ile Val Ala Ser Ser
20 25 30

Ile Val Ser Leu Tyr Phe Leu Glu Leu Thr Asp Leu Phe Lys Pro Ala
35 40 45

Lys Val Gly Phe Gln Cys Tyr Asp Arg Ala Leu Ser Met Pro Tyr Val
50 55 60

Glu Thr Asn Glu Glu Leu Ile Pro Leu Leu Met Leu Leu Ser Leu Ala
65 70 75 80

Phe Ala Ala Pro Ala Ala Ser Ile Met Val Gly Glu Gly Met Val Tyr
85 90 95

Cys Leu Gln Ser Arg Leu Trp Gly Arg Gly Pro Gly Gly Val Glu Gly
100 105 110

Ser Ile Asn Ala Gly Gly Cys Asn Phe Asn Ser Phe Leu Arg Arg Thr
115 120 125

Val Arg Phe Val Gly Val His Val Phe Gly Leu Cys Ala Thr Ala Leu
130 135 140

Val Thr Asp Val Ile Gln Leu Ala Thr Gly Tyr His Thr Pro Phe Phe
145 150 155 160

Leu Thr Val Cys Lys Pro Asn Tyr Thr Leu Leu Gly Thr Ser Cys Glu
165 170 175

Ser Asn Pro Tyr Ile Thr Gln Asp Ile Cys Ser Gly His Asp Thr His
180 185 190

Ala Ile Leu Ser Ala Arg Lys Thr Phe Pro Ser Gln His Ala Thr Leu
195 200 205

Ser Ala Phe Ala Ala Val Tyr Val Ser Met Tyr Phe Asn Ala Val Ile
210 215 220

Ser Asp Thr Thr Lys Leu Leu Lys Pro Ile Leu Val Phe Ala Phe Ala
225 230 235 240

Ile Ala Ala Gly Val Cys Gly Leu Thr Gln Ile Thr Gln Tyr Arg Ser
245 250 255

His Pro Val Asp Val Tyr Ala Gly Phe Leu Ile Gly Ala Gly Ile Ala
260 265 270

Ala Tyr Leu Ala Cys His Ala Val Gly Asn Phe Gln Ala Pro Pro Ala

275

280

285

Glu Lys Val Pro Thr Pro Ala Pro Ala Lys Asp Ala Leu Arg Ala Leu
 290 295 300

Thr Gln Arg Gly His Glu Ser Met Tyr Gln Gln Asn Lys Ser Val Ser
 305 310 315 320

Thr Asp Glu Leu Gly Pro Pro Gly Arg Leu Glu Gly Val Pro Arg Pro
 325 330 335

Val Ala Arg Glu Lys Thr Ser Leu Gly Ser Leu Lys Arg Ala Ser Val
 340 345 350

Asp Val Asp Leu Leu Ala Pro Arg Ser Pro Met Gly Lys Glu Gly Met
 355 360 365

Val Thr Phe Ser Asn Thr Leu Pro Arg Val Ser Thr Pro Ser Leu Asp
 370 375 380

Asp Pro Ala Arg Arg His Met Thr Ile His Val Pro Leu Asp Ala Ser
 385 390 395 400

Arg Ser Arg Gln Leu Ile Gly Glu Trp Lys Gln Lys Ser Leu Glu Gly
 405 410 415

Arg Gly Leu Gly Leu Pro Asp Glu Ala Ser Pro Val His Leu Arg Ala
 420 425 430

Pro Ala Glu Gln Val Ala Glu Glu Glu Glu Glu Glu Glu Glu Glu
 435 440 445

Glu Glu Glu Glu Glu Glu Glu Glu Glu Glu Gly Pro Val Pro Pro Ser
 450 455 460

Leu Tyr Pro Thr Val Gln Ala Arg Pro Gly Leu Gly Pro Arg Val Ile
 465 470 475 480

Leu Pro Pro Arg Pro Gly Pro Gln Pro Leu Val His Ile Pro Glu Glu
 485 490 495

Gly Val Gln Ala Gly Ala Gly Leu Ser Pro Lys Ser Ser Ser Ser Ser
500 505 510

Val Arg Ala Lys Trp Leu Ser Val Ala Glu Lys Gly Gly Gly Pro Val
515 520 525

Ala Val Ala Pro Ser Gln Pro Arg Val Ala Asn Pro Pro Arg Leu Leu
530 535 540

Gln Val Ile Ala Met Ser Lys Ala Ala Gly Gly Pro Lys Ala Glu Thr
545 550 555 560

Ala Ser Ser Ser Ser Ala Ser Ser Asp Ser Ser Gln Tyr Arg Ser Pro
565 570 575

Ser Asp Arg Asp Ser Ala Ser Ile Val Thr Ile Asp Ala His Ala Pro
580 585 590

His His Pro Val Val His Leu Ser Ala Gly Ser Thr Pro Trp Glu Trp
595 600 605

Lys Ala Lys Val Val Glu Gly Glu Gly Ser Tyr Glu Leu Gly Asp Leu
610 615 620

Ala Arg Gly Phe Arg Ser Ser Cys Lys Gln Pro Gly Met Gly Pro Gly
625 630 635 640

Ser Pro Val Ser Asp Val Asp Gln Glu Glu Pro Arg Phe Gly Ala Val
645 650 655

Ala Thr Val Asn Leu Ala Thr Gly Glu Gly Leu Pro Pro Pro Gly Ala
660 665 670

Ser Glu Gly Ala Leu Gly Ala Gly Ser Arg Glu Ser Thr Leu Arg Arg
675 680 685

Gln Val Gly Gly Leu Ala Glu Arg Glu Val Glu Ala Glu Ala Glu Ser
690 695 700

Tyr Tyr Arg Arg Met Gln Ala Arg Arg Tyr Gln Asp
705 710 715

<210> 7
 <211> 325
 <212> PRT
 <213> Mus musculus

<400> 7

Met Ala Val Glu Asn Asn Thr Gln Arg Ser Tyr Ser Ile Ile Pro Cys
 1 5 10 15

Phe Ile Phe Val Glu Leu Val Ile Met Ala Gly Thr Val Leu Leu Ala
 20 25 30

Tyr Tyr Phe Glu Cys Thr Asp Thr Phe Gln Val His Ile Gln Gly Phe
 35 40 45

Phe Cys Gln Asp Gly Asp Leu Met Lys Pro Tyr Pro Gly Thr Glu Glu
 50 55 60

Glu Ser Phe Ile Ser Pro Leu Val Leu Tyr Cys Val Leu Ala Ala Thr
 65 70 75 80

Pro Thr Ala Ile Ile Phe Ile Gly Glu Ile Ser Met Tyr Phe Ile Lys
 85 90 95

Ser Thr Arg Glu Ser Leu Ile Ala Glu Glu Lys Met Ile Leu Thr Gly
 100 105 110

Asp Cys Cys Tyr Leu Ser Pro Leu Leu Arg Arg Ile Ile Arg Phe Ile
 115 120 125

Gly Val Phe Ala Phe Gly Leu Phe Ala Thr Asp Ile Phe Val Asn Ala
 130 135 140

Gly Gln Val Val Thr Gly His Leu Thr Pro Tyr Phe Leu Thr Val Cys
 145 150 155 160

Gln Pro Asn Tyr Thr Ser Thr Asp Cys Arg Ala His Gln Gln Phe Ile
 165 170 175

Asn Asn Gly Asn Ile Cys Thr Gly Asp Leu Glu Val Ile Glu Lys Ala
 180 185 190

Arg Arg Ser Phe Pro Ser Lys His Ala Ala Leu Ser Ile Tyr Ser Ala
 195 200 205

Leu Tyr Ala Thr Met Tyr Ile Thr Ser Thr Ile Lys Thr Lys Ser Ser
 210 215 220

Arg Leu Ala Lys Pro Val Leu Cys Leu Gly Thr Leu Cys Thr Ala Phe
 225 230 235 240

Leu Thr Gly Leu Asn Arg Val Ser Glu Tyr Arg Asn His Cys Ser Asp
 245 250 255

Val Ile Ala Gly Phe Ile Leu Gly Thr Ala Val Ala Leu Phe Leu Gly
 260 265 270

Met Cys Val Val His Asn Phe Arg Gly Thr Gln Gly Ser Pro Ser Lys
 275 280 285

Pro Lys Pro Glu Asp Pro Arg Gly Val Pro Leu Met Ala Phe Pro Arg
 290 295 300

Ile Glu Ser Pro Leu Glu Thr Leu Ser Ala Gln Asn His Ser Ala Ser
 305 310 315 320

Met Thr Glu Val Thr
 325

<210> 8
 <211> 343
 <212> PRT
 <213> Mus musculus

<400> 8

Met Ala Gly Gly Arg Pro His Leu Lys Arg Ser Phe Ser Ile Ile Pro
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Cys Phe Val Phe Val Glu Ser Val Leu Leu Gly Ile Val Val Leu Leu
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Ala Tyr Arg Leu Glu Phe Thr Asp Thr Phe Pro Val His Thr Gln Gly
 35 40 45

Phe Phe Cys Tyr Asp Ser Ala Tyr Ala Lys Pro Tyr Pro Gly Pro Glu
 50 55 60

Ala Ala Ser Arg Ala Pro Pro Ala Leu Ile Tyr Ala Leu Val Thr Ala
 65 70 75 80

Gly Pro Thr Leu Thr Ile Leu Leu Gly Glu Leu Ala Arg Ala Phe Phe
 85 90 95

Pro Ala Pro Pro Ser Ser Ser Pro Val Ser Gly Glu Ser Thr Ile Val
 100 105 110

Ser Gly Ala Cys Cys Arg Phe Ser Pro Pro Leu Arg Arg Leu Val Arg
 115 120 125

Phe Leu Gly Val Tyr Ser Phe Gly Leu Phe Thr Thr Thr Ile Phe Ala
 130 135 140

Asn Ala Gly Gln Val Val Thr Gly Asn Pro Thr Pro His Phe Leu Ser
 145 150 155 160

Val Cys Arg Pro Asn Tyr Thr Ala Leu Gly Cys Pro Pro Pro Ser Pro
 165 170 175

Asp Arg Pro Gly Pro Asp Arg Phe Val Thr Asp Gln Ser Ala Cys Ala
 180 185 190

Gly Ser Pro Ser Leu Val Ala Ala Ala Arg Arg Ala Phe Pro Cys Lys
 195 200 205

Asp Ala Ala Leu Cys Ala Tyr Ala Val Thr Tyr Thr Ala Met Tyr Val
 210 215 220

Thr Leu Val Phe Arg Val Lys Gly Ser Arg Leu Val Lys Pro Ser Leu
 225 230 235 240

Cys Leu Ala Leu Leu Cys Pro Ala Phe Leu Val Gly Val Val Arg Val
 245 250 255

Ala Glu Tyr Arg Asn His Trp Ser Asp Val Leu Ala Gly Phe Leu Thr
 260 265 270

Gly Ala Ala Ile Ala Thr Phe Leu Val Thr Cys Val Val His Asn Phe
 275 280 285

Gln Ser Arg Pro His Ser Gly Arg Arg Leu Ser Pro Trp Glu Asp Leu
 290 295 300

Ser Gln Ala Pro Thr Met Asp Ser Pro Leu Glu Lys Asn Pro Arg Pro
 305 310 315 320

Ala Gly Arg Ile Arg His Arg His Gly Ser Pro His Pro Ser Arg Arg
 325 330 335

Thr Val Pro Ala Val Ala Thr
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<210> 9
 <211> 766
 <212> PRT
 <213> Rattus norvegicus

<400> 9

Met Gln Arg Ala Gly Ser Ser Gly Ala Arg Gly Glu Cys Asp Ile Ser
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Gly Thr Gly Arg Leu Arg Leu Glu Gln Ala Ala Arg Leu Gly Gly Arg
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Ala Val His Thr Ser Pro Thr Gly Gly Leu Gly Ala Arg Gln Val Ala
 35 40 45

Gly Met Ser Ala Lys Glu Arg Pro Lys Gly Lys Val Ile Lys Asp Ser
 50 55 60

Val Thr Leu Leu Pro Cys Phe Tyr Phe Val Glu Leu Pro Ile Leu Ala
 65 70 75 80

Ser Ser Val Val Ser Leu Tyr Phe Leu Glu Leu Thr Asp Val Phe Lys
 85 90 95

Pro Val His Ser Gly Phe Ser Cys Tyr Asp Arg Ser Leu Ser Met Pro
 100 105 110

Tyr Ile Glu Pro Thr Gln Glu Ala Ile Pro Phe Leu Met Leu Leu Ser
 115 120 125

Leu Ala Phe Ala Gly Pro Ala Ile Thr Ile Met Val Gly Glu Gly Ile
 130 135 140

Leu Tyr Cys Cys Leu Ser Lys Arg Arg Asn Gly Ala Gly Leu Glu Pro
 145 150 155 160

Asn Ile Asn Ala Gly Gly Cys Asn Phe Asn Ser Phe Leu Arg Arg Ala
 165 170 175

Val Arg Phe Val Gly Val His Val Val Gly Leu Cys Ser Thr Ala Leu
 180 185 190

Ile Thr Asp Ile Ile Gln Leu Ala Thr Gly Tyr Gln Ala Pro Tyr Phe
 195 200 205

Leu Thr Val Cys Lys Pro Met Tyr Thr Ser Leu Glu Gly Ser Cys Lys
 210 215 220

Glu Asn Ser Tyr Ile Val Glu Glu Ile Cys Ser Gly Ser Asp Leu Thr
 225 230 235 240

Val Ile Asn Asn Gly Lys Lys Ser Phe Pro Ser Gln His Ala Thr Leu
 245 250 255

Ala Ala Phe Ala Ala Val Tyr Val Ser Met Tyr Phe Asn Ser Thr Leu
 260 265 270

Thr Asp Ser Ser Lys Leu Leu Lys Pro Leu Leu Val Phe Thr Phe Ile
 275 280 285

Ile Cys Gly Ile Ile Cys Gly Leu Thr Arg Ile Thr Gln Tyr Lys Asn
 290 295 300

His Pro Val Asp Val Tyr Cys Gly Phe Leu Ile Gly Gly Gly Ile Ala
 305 310 315 320

Leu Tyr Leu Gly Leu Tyr Ala Val Gly Asn Phe Leu Pro Ser Glu Asp

325

330

335

Ser Met Leu Gln His Arg Asp Ala Leu Arg Ser Leu Thr Asp Leu Asn
 340 345 350

Gln Asp Pro Ser Arg Val Leu Ser Ala Lys Asn Gly Ser Ser Gly Asp
 355 360 365

Gly Ile Ala His Thr Glu Gly Ile Leu Asn Arg Asn His Arg Asp Ala
 370 375 380

Ser Ser Leu Thr Asn Leu Lys Arg Ala Asn Ala Asp Val Glu Ile Ile
 385 390 395 400

Thr Pro Arg Ser Pro Met Gly Lys Glu Ser Met Val Thr Phe Ser Asn
 405 410 415

Thr Leu Pro Arg Ala Asn Thr Pro Ser Val Glu Asp Pro Val Arg Arg
 420 425 430

Asn Ala Ser Ile His Ala Ser Met Asp Ser Ala Arg Ser Lys Gln Leu
 435 440 445

Leu Thr Gln Trp Lys Ser Lys Asn Glu Ser Arg Lys Met Ser Leu Gln
 450 455 460

Val Met Asp Ser Glu Pro Glu Gly Gln Ser Pro Pro Arg Ser Ile Glu
 465 470 475 480

Met Arg Ser Ser Ser Glu Pro Ser Arg Val Gly Val Asn Gly Asp His
 485 490 495

His Val Pro Gly Asn Gln Tyr Leu Lys Ile Gln Pro Gly Thr Val Pro
 500 505 510

Gly Cys Asn Asn Ser Met Pro Ala Gly Pro Arg Val Ser Ile Gln Ser
 515 520 525

Arg Pro Gly Ser Ser Gln Leu Val His Ile Pro Glu Glu Thr Gln Glu
 530 535 540

Asn Ile Ser Thr Ser Pro Lys Ser Ser Ser Ala Arg Ala Lys Trp Leu
 545 550 555 560

Lys Ala Ala Glu Lys Thr Val Ala Cys Asn Arg Gly Asn Asn Gln Pro
 565 570 575

Arg Ile Met Gln Val Ile Ala Met Ser Lys Gln Gln Gly Val Leu Gln
 580 585 590

Ser Ser Pro Lys Asn Ala Glu Gly Ser Thr Val Thr Cys Thr Gly Ser
 595 600 605

Ile Arg Tyr Lys Thr Leu Thr Asp His Glu Pro Ser Gly Ile Val Arg
 610 615 620

Val Glu Ala His Pro Glu Asn Asn Arg Pro Ile Ile Gln Ile Pro Ser
 625 630 635 640

Ser Thr Glu Gly Glu Gly Ser Gly Ser Trp Lys Trp Lys Ala Pro Glu
 645 650 655

Lys Ser Ser Leu Arg Gln Thr Tyr Glu Leu Asn Asp Leu Asn Arg Asp
 660 665 670

Ser Glu Ser Cys Glu Ser Leu Lys Asp Ser Phe Gly Ser Gly Asp Arg
 675 680 685

Lys Arg Lys His Ile Asp Ser Asn Glu His His His His Gly Ile Thr
 690 695 700

Thr Ile Arg Val Thr Pro Val Glu Gly Ser Glu Ile Gly Ser Glu Thr
 705 710 715 720

Leu Ser Val Ser Ser Ser Arg Asp Ser Thr Leu Arg Arg Lys Gly Asn
 725 730 735

Ile Ile Leu Ile Pro Glu Arg Ser Asn Ser Pro Glu Asn Thr Arg Asn
 740 745 750

Ile Phe Tyr Lys Gly Thr Ser Pro Thr Arg Pro Tyr Lys Asp
 755 760 765

<210> 10
 <211> 748
 <212> PRT
 <213> Rattus norvegicus

<400> 10

Met Ile Ala Lys Lys Glu Lys Asn Lys Thr Pro Lys Asp Ser Met Thr
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Leu Leu Pro Cys Phe Tyr Phe Val Glu Leu Pro Ile Val Ala Ser Ser
 20 25 30

Val Val Ser Leu Tyr Phe Leu Glu Leu Thr Asp Leu Phe Gln Pro Ala
 35 40 45

Lys Val Gly Phe Gln Cys His Asp Arg Ser Leu Ser Met Pro Tyr Val
 50 55 60

Glu Thr Asn Glu Glu Leu Ile Pro Leu Leu Met Leu Leu Ser Leu Ala
 65 70 75 80

Phe Ala Ala Pro Ala Ala Ser Ile Met Val Gly Glu Gly Met Val Tyr
 85 90 95

Cys Leu Gln Ser Arg Leu Trp Gly Arg Gly Pro Gly Gly Val Glu Gly
 100 105 110

Ser Ile Asn Ala Gly Gly Cys Asn Phe Asn Ser Phe Leu Arg Arg Thr
 115 120 125

Val Arg Phe Val Gly Val His Val Phe Gly Leu Cys Ala Thr Ala Leu
 130 135 140

Val Thr Asp Val Ile Gln Leu Ala Thr Gly Tyr His Thr Pro Phe Phe
 145 150 155 160

Leu Thr Val Cys Lys Pro Asn Tyr Thr Leu Leu Gly Thr Ser Cys Glu
 165 170 175

Ala Asn Pro Tyr Ile Thr Gln Asp Ile Cys Ser Gly His Asp Thr His
 180 185 190

Ala Ile Leu Ser Ala Arg Lys Thr Phe Pro Ser Gln His Ala Thr Leu
195 200 205

Ser Ala Phe Ala Ala Val Tyr Val Ser Met Tyr Phe Asn Ser Val Ile
210 215 220

Ser Asp Ala Thr Lys Leu Leu Lys Pro Ile Leu Val Phe Ala Phe Ala
225 230 235 240

Ile Ala Ala Gly Val Cys Gly Leu Thr Gln Ile Thr Gln Tyr Arg Ser
245 250 255

His Pro Val Asp Val Tyr Ala Gly Phe Leu Ile Gly Ala Gly Ile Ala
260 265 270

Ala Tyr Leu Ala Cys His Ala Val Gly Asn Phe Gln Ala Pro Pro Ala
275 280 285

Glu Lys Val Pro Thr Pro Ala Pro Ala Lys Asp Ala Leu Arg Val Leu
290 295 300

Thr Gln Arg Gly His Glu Ser Met Tyr Gln Gln Asn Lys Ser Val Ser
305 310 315 320

Thr Asp Glu Leu Gly Pro Pro Gly Arg Leu Glu Gly Val Pro Arg Pro
325 330 335

Val Ala Arg Glu Lys Thr Ser Leu Gly Ser Leu Lys Arg Ala Ser Val
340 345 350

Asp Val Asp Leu Leu Ala Pro Arg Ser Pro Met Gly Lys Glu Gly Met
355 360 365

Val Thr Phe Ser Asn Thr Leu Pro Arg Val Ser Thr Pro Ser Leu Asp
370 375 380

Asp Pro Ser Arg Arg His Met Thr Ile His Val Pro Leu Asp Ala Ser
385 390 395 400

Arg Ser Arg Gln Leu Ile Ser Glu Trp Lys Gln Lys Ser Leu Glu Gly
405 410 415

Arg Gly Leu Gly Leu Pro Asp Glu Ala Ser Pro Ala His Leu Arg Ala
 420 425 430

Pro Ala Glu Gln Val Ala Glu Glu Glu Glu Glu Glu Glu Glu Glu
 435 440 445

Glu Glu Glu Glu Glu Glu Glu Glu Glu Glu Glu Gly Pro Val Pro Pro
 450 455 460

Ser Leu Tyr Pro Thr Val Gln Ala Arg Pro Gly Leu Gly Pro Arg Val
 465 470 475 480

Ile Leu Pro Pro Arg Pro Gly Pro Gln Pro Leu Ile His Ile Pro Glu
 485 490 495

Glu Val Val Gln Ala Gly Ala Gly Leu Ser Pro Lys Ser Ser Ala Ser
 500 505 510

Val Arg Ala Lys Trp Leu Ser Met Val Glu Lys Gly Gly Gly Pro Val
 515 520 525

Ala Val Ala Pro Pro Gln Pro Arg Val Ala Asn Pro Pro Arg Leu Leu
 530 535 540

Gln Val Ile Ala Met Ser Lys Ala Ala Gly Gly Pro Lys Ala Glu Thr
 545 550 555 560

Ala Ser Ser Ser Ser Ala Ser Ser Asp Ser Ser Gln Tyr Arg Ser Pro
 565 570 575

Ser Asp Arg Asp Ser Ala Ser Ile Val Thr Ile Asp Ala His Ala Pro
 580 585 590

His His Pro Val Val His Leu Ser Ala Gly Ser Thr Pro Trp Glu Trp
 595 600 605

Lys Ala Lys Val Val Glu Gly Glu Gly Gly Tyr Glu Leu Gly Asp Leu
 610 615 620

Ala Arg Gly Phe Arg Ser Ser Cys Lys Gln Pro Gly Ile Gly Pro Gly

625

630

635

640

Ser Pro Val Ser Asp Val Asp Gln Glu Glu Pro Arg Phe Gly Ala Val
 645 650 655

Ala Thr Val Asn Leu Ala Thr Gly Glu Gly Leu Pro Pro Pro Gly Ala
 660 665 670

Ser Glu Gly Ala Leu Gly Ala Gly Ser Arg Glu Ser Thr Leu Arg Arg
 675 680 685

Gln Val Gly Ala Leu Gly Glu Arg Glu Val Glu Ala Glu Ala Glu Ser
 690 695 700

Tyr Tyr Arg Arg Met Gln Ala Arg Arg Tyr Gln Asp Ala Trp Gln Ser
 705 710 715 720

Cys Asp Gly Gln Lys Ala Gly Trp Gly Val Thr Thr Ala Pro Pro Ile
 725 730 735

Lys Val His Gly Asn Arg Lys Lys Lys Lys Lys Lys
 740 745

<210> 11
 <211> 325
 <212> PRT
 <213> Rattus norvegicus

<400> 11

Met Ala Val Glu Asn Asn Thr Gln Arg Ser Tyr Ser Ile Ile Pro Cys
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Phe Ile Phe Val Glu Leu Val Ile Met Ala Gly Thr Val Leu Leu Ala
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Tyr Tyr Phe Glu Cys Thr Asp Thr Phe Gln Val His Ile Gln Gly Phe
 35 40 45

Phe Cys Gln Asp Gly Asp Leu Met Lys Pro Tyr Pro Gly Thr Glu Glu
 50 55 60

Glu Ser Phe Ile Ser Pro Leu Val Leu Tyr Cys Val Leu Ala Ala Thr

65

70

75

80

Pro Thr Ala Ile Ile Phe Ile Gly Glu Ile Ser Met Tyr Phe Ile Lys
85 90 95

Ser Thr Arg Glu Ser Leu Ile Ala Glu Glu Lys Met Ile Leu Thr Gly
100 105 110

Asp Cys Cys Tyr Leu Ser Pro Leu Leu Arg Arg Ile Val Arg Phe Ile
115 120 125

Gly Val Phe Ala Phe Gly Leu Phe Ala Thr Asp Ile Phe Val Asn Ala
130 135 140

Gly Gln Val Val Thr Gly His Leu Thr Pro Tyr Phe Leu Thr Val Cys
145 150 155 160

Gln Pro Asn Tyr Thr Ser Thr Asp Cys Arg Ala His His Gln Phe Ile
165 170 175

Asn Asn Gly Asn Ile Cys Thr Gly Asp Leu Glu Val Ile Glu Lys Ala
180 185 190

Arg Arg Ser Phe Pro Ser Lys His Ala Ala Leu Ser Ile Tyr Ser Ala
195 200 205

Leu Tyr Ala Thr Met Tyr Ile Thr Ser Thr Ile Lys Thr Lys Ser Ser
210 215 220

Arg Leu Ala Lys Pro Val Leu Cys Leu Gly Asp Leu Cys Thr Ala Phe
225 230 235 240

Leu Thr Gly Leu Asn Arg Val Ser Glu Tyr Arg Asn His Cys Ser Asp
245 250 255

Val Ile Ala Gly Phe Ile Leu Gly Thr Ala Val Ala Leu Phe Leu Gly
260 265 270

Met Cys Val Val His Asn Phe Lys Gly Thr Gln Gly Ser Ala Ser Lys
275 280 285

Pro Lys Pro Glu Asp Pro Arg Gly Val Pro Leu Met Ala Phe Pro Arg
 290 295 300

Ile Glu Ser Pro Leu Glu Thr Leu Ser Ala Gln Asn His Ser Ala Ser
 305 310 315 320

Met Thr Glu Val Thr
 325

<210> 12
 <211> 343
 <212> PRT
 <213> Rattus norvegicus

<400> 12

Met Ala Gly Gly Arg Pro His Leu Lys Arg Ser Phe Ser Ile Ile Pro
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Cys Phe Val Phe Val Glu Ser Val Leu Leu Gly Ile Val Val Leu Leu
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Ala Tyr Arg Leu Glu Phe Thr Asp Thr Phe Pro Val His Thr Gln Gly
 35 40 45

Phe Phe Cys Tyr Asp Ser Ala Tyr Ala Lys Pro Tyr Pro Gly Pro Glu
 50 55 60

Ala Ala Ser Arg Ala Pro Pro Ala Leu Ile Tyr Ala Leu Val Thr Ala
 65 70 75 80

Gly Pro Thr Leu Thr Ile Leu Leu Gly Glu Leu Ala Arg Ala Phe Phe
 85 90 95

Pro Ala Pro Pro Ser Ser Ser Pro Val Ser Gly Glu Ser Thr Ile Val
 100 105 110

Ser Gly Ala Cys Cys Arg Phe Ser Pro Pro Leu Arg Arg Leu Val Arg
 115 120 125

Phe Leu Gly Val Tyr Ser Phe Gly Leu Phe Thr Thr Thr Ile Phe Ala
 130 135 140

Asn Ala Gly Gln Val Val Thr Gly Asn Pro Thr Pro His Phe Leu Ser
 145 150 155 160

Val Cys Arg Pro Asn Tyr Thr Ala Leu Gly Cys Pro Pro Pro Ser Pro
 165 170 175

Asp Arg Pro Gly Pro Asp Arg Phe Val Thr Asp Gln Ser Ala Cys Ala
 180 185 190

Gly Ser Pro Ser Leu Val Ala Ala Ala Arg Arg Ala Phe Pro Cys Lys
 195 200 205

Asp Ala Ala Leu Cys Ala Tyr Ala Val Thr Tyr Thr Ala Met Tyr Val
 210 215 220

Thr Leu Val Phe Arg Val Lys Gly Ser Arg Leu Val Lys Pro Ser Leu
 225 230 235 240

Cys Leu Ala Leu Leu Cys Pro Ala Phe Leu Val Gly Val Val Arg Val
 245 250 255

Ala Glu Tyr Arg Asn His Trp Ser Asp Val Leu Ala Gly Phe Leu Thr
 260 265 270

Gly Ala Ala Ile Ala Thr Phe Leu Val Thr Cys Val Val His Asn Phe
 275 280 285

Gln Ser Arg Pro His Ser Gly Arg Arg Leu Ser Pro Trp Glu Asp Leu
 290 295 300

Ser Gln Ala Pro Thr Met Asp Ser Pro Leu Glu Lys Asn Pro Arg Pro
 305 310 315 320

Ala Gly Arg Ile Arg His Arg His Gly Ser Pro His Pro Ser Arg Arg
 325 330 335

Thr Val Pro Ala Val Ala Thr
 340

<210> 13
 <211> 5083
 <212> DNA

<213> Homo sapiens

<400> 13

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 <211> 2356
 <212> DNA
 <213> Homo sapiens

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